

DAFTAR PUSTAKA

- Bhattarai, N., Ramay, H. R., Gunn, J., Matsen, F. A., & Zhang, M. (2005). PEG-grafted chitosan as an injectable thermosensitive hydrogel for sustained protein release. *Journal of Controlled Release*, 103(3), 609–624. <https://doi.org/10.1016/j.jconrel.2004.12.019>
- Bin Darwish, N., Al Abdulgader, H., AlRomaih, H., & Alalawi, A. (2019). Effect of ultrafiltration membranes modifications by chitosan on humic acid fouling. *Journal of Water Process Engineering*, 27(November 2018), 32–36. <https://doi.org/10.1016/j.jwpe.2018.11.008>
- Board, E., Abe, G. A., Long, L. T. E., & Vicent, T. M. (2011). *Chitosan for biomaterials I*.
- Cavalheiro, É. T. G. (2018). *Thermal Analysis. Reference Module in Chemistry, Molecular Sciences and Chemical Engineering* (3 ed.). Elsevier Inc. <https://doi.org/10.1016/B978-0-12-409547-2.14380-X>
- Chakrabarty, B., Ghoshal, A. K., & Purkait, M. K. (2008). Effect of molecular weight of PEG on membrane morphology and transport properties. *Journal of Membrane Science*, 309(1–2), 209–221. <https://doi.org/10.1016/j.memsci.2007.10.027>
- Chakrabarty, B., Ghoshal, A. K., & Purkait, M. K. (2010). Cross-flow ultrafiltration of stable oil-in-water emulsion using polysulfone membranes. *Chemical Engineering Journal*, 165(2), 447–456. <https://doi.org/10.1016/j.cej.2010.09.031>
- Chen, F., Shi, X., Chen, X., & Chen, W. (2018). An iron (II) phthalocyanine/poly(vinylidene fluoride) composite membrane with antifouling property and catalytic self-cleaning function for high-efficiency oil/water separation. *Journal of Membrane Science*, 552(November 2017), 295–304. <https://doi.org/10.1016/j.memsci.2018.02.030>
- Cheremisinoff, N. P. (2002). *Handbook of water and wastewater treatment technologies. Handbook of Water and Wastewater Treatment Technologies*. <https://doi.org/10.1016/B978-075067498-0/50000-0>
- Cheryan, M. (1998). *Ultrafiltration and Microfiltration Handbook*. Urbana: Technomic Publishing Company.

Elsa Dwihermiati, 2019

KARAKTERISTIK DAN KINERJA MEMBRAN ULTRAFILTRASI NANOKOMPOSIT
KITOSAN/PEG/MWCNT/IODIN PADA SISTEM DEAD-END DAN CROSSFLOW

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

Coates, J. (2000). Interpretation of Infrared Spectra, A Practical Approach. In *Southern Medical Journal* (R.A. Meyer, Vol. 77,

- hal. 10815–10837). Chichester: John Wiley & Sons Ltd.
<https://doi.org/10.1097/00007611-198402000-00017>
- Coleman, J. N., Khan, U., & Gun'ko, Y. K. (2006). Mechanical reinforcement of polymers using carbon nanotubes. *Advanced Materials*, 18(6), 689–706.
<https://doi.org/10.1002/adma.200501851>
- Cooper, R. A. (2007). Iodine Revisited. *Int Wound J*, 55(2), 124–137.
- Danilovas, P. P., Rutkaite, R., & Zemaitaitis, A. (2014). Thermal degradation and stability of cationic starches and their complexes with iodine. *Carbohydrate Polymers*, 112, 721–728.
<https://doi.org/10.1016/j.carbpol.2014.06.038>
- Dash, M., Chiellini, F., Ottenbrite, R. M., & Chiellini, E. (2011). Chitosan - A versatile semi-synthetic polymer in biomedical applications. *Progress in Polymer Science (Oxford)*, 36(8), 981–1014. <https://doi.org/10.1016/j.progpolymsci.2011.02.001>
- Davis, M. L. (2010). *WATER AND WASTEWATER ENGINEERING. The McGraw-Hill* (Vol. 136).
- Drioli, E. (2016). *Encyclopedia of Membranes*. Rende: Springer.
<https://doi.org/10.1007/978-3-662-44324-8>
- Durani, P., & Leaper, D. (2008). Povidone-iodine: Use in hand disinfection, skin preparation and antiseptic irrigation. *International Wound Journal*, 5(3), 376–387.
<https://doi.org/10.1111/j.1742-481X.2007.00405.x>
- Egerton, R. F. (2005). *Physical Principles of Electron Microscopy*. Springer.
- Fadillah, F. (2003). *Pengaruh penambahan PEG terhadap karakterisasi membran selulosa asetat*. Bogor: Departemen Teknologi Industri Pertanian IPB.
- Gebbru, K. A., & Das, C. (2017). Removal of bovine serum albumin from wastewater using fouling resistant ultra filtration membranes based on the blends of cellulose acetate, and PVP-TiO₂ nanoparticles. *Journal of Environmental Management*, 200, 283–294. <https://doi.org/10.1016/j.jenvman.2017.05.086>
- Glaze, W. H., Kang, J., & Douglas, H. (2008). Ozone: Science & Engineering: The Journal of the International Ozone Association The Chemistry of Water Treatment Processes Involving Ozone, Hydrogen Peroxide and Ultraviolet Radiation, (December 2012), 335–352. [https://doi.org/10.1016/S0926-3373\(03\)00326-6](https://doi.org/10.1016/S0926-3373(03)00326-6)
- Gottardi, W. (1985). The influence of the chemical behaviour of iodine

- on the germicidal action of disinfectant solutions containing iodine. *Journal of Hospital Infection*, 6(SUPPL. 1), 1–11. [https://doi.org/10.1016/S0195-6701\(85\)80040-2](https://doi.org/10.1016/S0195-6701(85)80040-2)
- Guinebretière, R. (2007). *Diffraction, X-ray Materials, Polycrystalline*. ISTE.
- Harris, P. J. . (2009). *Carbon Nanotube Science Synthesis*. Cambridge.
- Hatakeyama, T., & Quinn, F. X. (1999). *Thermal Analysis — Fundamentals and Applications to Polymer Science*. John Wiley & Sons Ltd. (2nd Editio, Vol. 51). [https://doi.org/10.1016/S0039-9140\(99\)00304-5](https://doi.org/10.1016/S0039-9140(99)00304-5)
- Hierold, C. (2008). *Carbon Nanotube Device*. Micro (Vol. 8). Weinheim: WILEY-VCH.
- Jayakumar, R., Prabakaran, M., & Muzzarelli, R. (2011). *Chitosan for Biomaterial II*. Berlin: Springer.
- Kaiho, T. (2014). *Iodine Chemistry and Applications*. *Iodine Chemistry and Applications* (Vol. 9781118466). <https://doi.org/10.1002/9781118909911>
- Kaiho, T. (2015). *Iodine Chemistry and Applications*. *Iodine Chemistry and Applications* (Vol. 9781118466). John Wiley & Sons. <https://doi.org/10.1002/9781118909911>
- Kesting, R. (1971). *Synthetic Polymeric Membranes*. New York: McGraw-Hill.
- Kiran, S. A., Thuyavan, Y. L., Arthanareeswaran, G., Matsura, T., & Ismail, A. F. (2016). Impact of graphene oxide embedded polyethersulfone membranes for the effective treatment of distillery effluent. *Chemical Engineering Journal*, 286, 528–537. <https://doi.org/10.1016/j.cej.2015.10.091>
- Kochkodan, V., & Hilal, N. (2015). A comprehensive review on surface modified polymer membranes for biofouling mitigation. *Desalination*, 356, 187–207. <https://doi.org/10.1016/j.desal.2014.09.015>
- Ladewig, B., & Al-Shaeli, M. N. Z. (2017a). *Fundamentals of Membrane Bioreactors*. <https://doi.org/10.1007/978-981-10-2014-8>
- Ladewig, B., & Al-Shaeli, M. N. Z. (2017b). *Fundamentals of Membrane Bioreactors*. <https://doi.org/10.1007/978-981-10-2014-8>
- Law, K. Y., & Zhao, H. (2015). *Surface wetting: Characterization*, Elsa Dwihermiati, 2019
- KARAKTERISTIK DAN KINERJA MEMBRAN ULTRAFILTRASI NANOKOMPOSIT KITOSAN/PEG/MWCNT/IODIN PADA SISTEM DEAD-END DAN CROSSFLOW**
- Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

contact angle, and fundamentals. Surface Wetting: Characterization, Contact Angle, and Fundamentals.
<https://doi.org/10.1007/978-3-319-25214-8>

- Leguen, R. (2013). *Water Scarcity*. Retrieved Juni 12, 2018, from World Wild Life: <https://www.worldwildlife.org/threats/water-scarcity>
- Li, H. Y., Osman, H., Kang, C. W., & Ba, T. (2017). Numerical and experimental investigation of UV disinfection for water treatment. *Applied Thermal Engineering*, 111, 280–291.
<https://doi.org/10.1016/j.applthermaleng.2016.09.106>
- Li, X., & Li, J. (2016). Encyclopedia of Membranes, 1–3.
<https://doi.org/10.1007/978-3-662-44324-8>
- Liu, J., Lu, X., & Wu, C. (2013). Effect of preparation methods on crystallization behavior and tensile strength of poly(vinylidene fluoride) membranes. *Membranes*, 3(4), 389–405.
<https://doi.org/10.3390/membranes3040389>
- Liu, Y., Huang, H., Huo, P., & Gu, J. (2017). Exploration of zwitterionic cellulose acetate antifouling ultrafiltration membrane for bovine serum albumin (BSA) separation. *Carbohydrate Polymers*, 165, 266–275. <https://doi.org/10.1016/j.carbpol.2017.02.052>
- Mokkapati, V. R. S. S., Koseoglu-Imer, D. Y., Yilmaz-Deveci, N., Mijakovic, I., & Koyuncu, I. (2017). Membrane properties and anti-bacterial/anti-biofouling activity of polysulfone–graphene oxide composite membranes phase inversed in graphene oxide non-solvent. *RSC Adv.*, 7(8), 4378–4386.
<https://doi.org/10.1039/C6RA25015G>
- Moslehyani, A., Ismail, A. F., Matsuura, T., Rahman, M. A., & Goh, P. S. (2019). Recent Progresses of Ultrafiltration (UF) Membranes and Processes in Water Treatment. In *Membrane Separation Principles and Applications* (hal. 85–110). Elsevier Inc.
<https://doi.org/10.1016/B978-0-12-812815-2.00003-X>
- Mulder, M. (1996). *Basic Principles of Membrane Technology*. Netherland: Kluwer Academic Publishers.
- Mulder, M. (2000). Phase inversion membranes. In *membrane preparation* (Vol. 269, hal. 131–164). Academic Press.
<https://doi.org/10.1016/B0-12-226770-2/05271-6>
- Nikoli, G. S. (2011). *Fourier Transforms - New Analytical Approaches and FTIR Strategies*. <https://doi.org/10.5772/2040>
- Nisa, K. (2005). Karakteristik Fluks Membran Kitosan Termodifikasi Poli (Vinil Alkohol) Dengan Variasi Poli (Etilena Glikol)

Elsa Dwihermiati, 2019

KARAKTERISTIK DAN KINERJA MEMBRAN ULTRAFILTRASI NANOKOMPOSIT KITOSAN/PEG/MWCNT/IODIN PADA SISTEM DEAD-END DAN CROSSFLOW

Universitas Pendidikan Indonesia | repository.upi.edu | perpustakaan.upi.edu

- Sebagai Porogen. *Departemen Kimia FPMIPA IPB*.
- Notodarmojo, S., & Deniva, A. (2004). Penurunan Zat Organik dan Kekeruhan Menggunakan Teknologi Membran Ultrafiltrasi dengan Sistem Aliran Dead-End (Studi Kasus : Waduk Saguling, Padalarang). *ITB Journal of Sciences*, 36(1), 63–82. <https://doi.org/10.5614/itbj.sci.2004.36.1.5>
- Oschmann, N., Nghiem, L. D., & Schiifer, A. I. (2004). Fouling mechanisms of submerged ultrafiltration membranes in greywater recycling Nadine. *Indian Veterinary Journal*, 91(9), 20–22. <https://doi.org/10.1016/j>
- Punyani, S., & Singh, H. (2006). Preparation of iodine containing quaternary amine methacrylate copolymers and their contact killing antimicrobial properties. *Journal of Applied Polymer Science*, 102(2), 1038–1044. <https://doi.org/10.1002/app.24181>
- Rahimi, Z., Zinatizadeh, A. A. L., & Zinadini, S. (2015). Preparation of high antibiofouling amino functionalized MWCNTs/PES nanocomposite ultrafiltration membrane for application in membrane bioreactor. *Journal of Industrial and Engineering Chemistry*, 29, 366–374. <https://doi.org/10.1016/j.jiec.2015.04.017>
- Rahmah, W. (2016). *Aktivitas Antibakteri dan Karakterisasi Membran Filtrasi Berbasis Kitosan/PEG/MWCNT/Iodin*. Bandung: Departemen Pendidikan Kimia FPMIPA UPI.
- Ren, J. L., Peng, F., Sun, R. C., Liu, C. F., Cao, Z. N., Luo, W., & Tang, J. N. (2008). Synthesis of Cationic Hemicellulosic Derivatives with a Low Degree of Substitution in Dimethyl Sulfoxide Media. *American Journal of Cancer Research*, 5(4), 1295–1307. <https://doi.org/10.1002/app>
- Rezania, J., Vatanpour, V., Shockravi, A., & Ehsani, M. (2018). Preparation of novel carboxylated thin-film composite polyamide-polyester nanofiltration membranes with enhanced antifouling property and water flux. *Reactive and Functional Polymers*, 131(July), 123–133. <https://doi.org/10.1016/j.reactfunctpolym.2018.07.012>
- Rinaudo, M. (2006). Chitin and chitosan: Properties and applications. *Progress in Polymer Science (Oxford)*, 31(7), 603–632. <https://doi.org/10.1016/j.progpolymsci.2006.06.001>
- Ruckenstein, E., & Zeng, X. (1997). Macroporous chitin affinity membranes for lysozyme separation. *Biotechnology and Bioengineering*, 56(6), 610–617.

- [https://doi.org/10.1002/\(SICI\)1097-0290\(19971220\)56:6<610::AID-BIT3>3.0.CO;2-Q](https://doi.org/10.1002/(SICI)1097-0290(19971220)56:6<610::AID-BIT3>3.0.CO;2-Q)
- Sai, M., Guo, R., Chen, L., Xu, N., Tang, Y., & Ding, D. (2015). Research on the preparation and characterization of chitosan grafted polyvinylpyrrolidone gel membrane with iodine. *Journal of Applied Polymer Science*, 132(14), 1–9. <https://doi.org/10.1002/app.41797>
- Setiawan, D. A., Argo, B. D., & Hendrawan, Y. (2015). Pengaruh Konsentrasi dan Preparasi Membran Terhadap Karakterisasi Membran Kitosan. *Jurnal Keteknikaan Pertanian Tropis dan Biosistem*, 3(1), 95–99.
- Shigeno, Y., Kondo, K., & Takemoto, K. (1980). Functional Monomers and Polymers. LXX. On the Adsorption of Iodine onto Chitosan. *Journal of Applied Polymer Science*, 25(5), 731–738. <https://doi.org/10.1002/app.1980.070250502>
- Silverstein, R. M., X. Webster, F., & Kiemle, D. J. (2005). *Spectrometric Identification of Organic Compounds*. (D. Brennen, Ed.) (7th ed.). John Wiley & Sons.
- Smart, S. K., Cassady, A. I., Lu, G. Q., & Martin, D. J. (2006). The biocompatibility of carbon nanotubes. *Carbon*, 44(6), 1034–1047. <https://doi.org/10.1016/j.carbon.2005.10.011>
- Stalder, A. F., Kulik, G., Sage, D., Barbieri, L., & Hoffmann, P. (2006). A snake-based approach to accurate determination of both contact points and contact angles, 286, 92–103. <https://doi.org/10.1016/j.colsurfa.2006.03.008>
- Stevens, M. P. (1999). Polymer Chemistry: An Introduction, 46(9), 551. <https://doi.org/1.3-1>
- Strathmann, H., Giorno, L., & Drioli, E. (2006). An Introduction to Membrane Science Technology, (January 2011), 29. <https://doi.org/10.1021/pr200145a>
- Subashini, R., & Khan, F. N. (2011). Molecular iodine as a versatile reagent for the synthesis of thiazoloquinoline-A potential antibacterial agent. *Phosphorus, Sulfur and Silicon and the Related Elements*, 186(3), 37–41. <https://doi.org/10.1080/10426507.2010.503209>
- Swallowe, G. M. (1999). *Mechanical Properties and Testing of Polymers. Mechanical properties and testing of polymers: an A-Z reference* (Vol. 3). Springer Science+Business Media Dordrecht. <https://doi.org/10.1007/978-94-015-9231-4>

- Tang, Y., Xie, L., Sai, M., Xu, N., & Ding, D. (2015). Preparation and antibacterial activity of quaternized chitosan with iodine. *Materials Science and Engineering: C*, 48, 1–4. <https://doi.org/10.1016/j.msec.2014.11.019>
- Wahyuni, S., Siswanto, S., Putra, S. M., & Putra, S. M. (2017). Formulasi Komposisi Membran Kitosan dan Optimasi Pengadukan dalam Penurunan Kandungan Padatan Limbah Cair Kelapa Sawit Formulation. *Widyariset*, 3(1), 35. <https://doi.org/10.14203/widyariset.3.1.2017.35-46>
- Wang, S. Y., Fang, L. F., Cheng, L., Jeon, S., Kato, N., & Matsuyama, H. (2018). Novel ultrafiltration membranes with excellent antifouling properties and chlorine resistance using a poly(vinyl chloride)-based copolymer. *Journal of Membrane Science*, 549(December 2017), 101–110. <https://doi.org/10.1016/j.memsci.2017.11.074>
- Yang, L., Hsiao, W. W., & Chen, P. (2002). Chitosan-cellulose composite membrane for affinity purification of biopolymers and immunoadsorption. *Journal of Membrane Science*, 197(1–2), 185–197. [https://doi.org/10.1016/S0376-7388\(01\)00632-9](https://doi.org/10.1016/S0376-7388(01)00632-9)
- Yang, Y., Zhang, H., Wang, P., Zheng, Q., & Li, J. (2007). The influence of nano-sized TiO₂ fillers on the morphologies and properties of PSF UF membrane. *Journal of Membrane Science*, 288(1–2), 231–238. <https://doi.org/10.1016/j.memsci.2006.11.019>
- YJ, Wei., CG, Liu., & L.P, Mo. (2005). Ultraviolet absorption spectra of iodine, iodide ion and triiodide ion. *Europe PMC*, 1, 86–88.
- Yoon, S.-H. (2016). *Membrane Bioreactor Processes (Principles And Applications*. CRC Press (Vol. 2). <https://doi.org/10.1515/psr-2017-0142>
- Yu, L.-Y., Shen, H.-M., & Xu, Z.-L. (2013). PVDF–TiO₂ Composite Hollow Fiber Ultrafiltration Membranes Prepared by TiO₂ Sol–Gel Method and Blending Method Li-Yun. *Polymers and Polymer Composites*, 21(7), 449–456. <https://doi.org/10.1002/app>
- Zemlyn, S., Wilson, W. W., & Hellweg, P. A. (1981). A caution on iodine water purification. *The Western journal of medicine*, 135(2), 166–167. Diambil dari <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1273058&tool=pmcentrez&rendertype=abstract>
- Zeng, M., & Fang, Z. (2004). Preparation of sub-micrometer porous membrane from chitosan/polyethylene glycol semi-IPN. *Journal*

- of *Membrane Science*, 245(1–2), 95–102. <https://doi.org/10.1016/j.memsci.2004.08.004>
- Zhang, J., Xu, Z., Mai, W., Min, C., Zhou, B., Shan, M., ... Qian, X. (2013). Improved hydrophilicity, permeability, antifouling and mechanical performance of PVDF composite ultrafiltration membranes tailored by oxidized low-dimensional carbon nanomaterials. *Journal of Materials Chemistry A*, 1(9), 3101–3111. <https://doi.org/10.1039/c2ta01415g>
- Zhao, X., & Liu, C. (2019). Efficient preparation of a novel PVDF antifouling membrane based on the solvent-responsive cleaning properties. *Separation and Purification Technology*, 210(July 2018), 100–106. <https://doi.org/10.1016/j.seppur.2018.07.088>
- Zhao, Y., Cabrera, E. D., Zhang, D., Sun, J., Kuang, T., Yang, W., ... Lee, L. J. (2018). Ultrasonic processing of MWCNT nanopaper reinforced polymeric nanocomposites. *Polymer*, 156(July), 85–94. <https://doi.org/10.1016/j.polymer.2018.09.053>
- Zhou, Z., Yang, Y., Li, X., Li, P., Zhang, T., Lv, X., ... Zheng, D. (2018). Optimized removal of natural organic matter by ultrasound-assisted coagulation of recycling drinking water treatment sludge. *Ultrasonics Sonochemistry*, 48, 171–180. <https://doi.org/10.1016/j.ultsonch.2018.05.022>
- Zhu, X., Bai, R., Wee, K. H., Liu, C., & Tang, S. L. (2010). Membrane surfaces immobilized with ionic or reduced silver and their anti-biofouling performances. *Journal of Membrane Science*, 363(1–2), 278–286. <https://doi.org/10.1016/j.memsci.2010.07.041>